

VISIBLE EMISSION OBSERVATION FORM

This form is designed to be used in conjunction with EPA Method 9, "Visual Determination of the Opacity of Emissions from Stationary Sources." Temporal changes in emission color, plume water droplet content, background color, sky conditions, observer position, etc. should be noted in the comments section adjacent to each minute of readings. Any information not dealt with elsewhere on the form should be noted under additional information. Following are brief descriptions of the type of information that needs to be entered on the form: for a more detailed discussion of each part of the form, refer to "Instructions for Use of Visible Emission Observation Form."

- Source Name: full company name, parent company or division or subsidiary information, if necessary.
 - Address: street (not mailing or home office) address of facility where VE observation is being made.
Phone (Key Contact): number for appropriate contact.
Source ID Number: number from NEDS, agency file, etc.
 - Process Equipment, Operating Mode: brief description of process equipment (include type of facility) and operating rate, % capacity, and/or mode (e.g. charging, tapping, shutdown).
 - Control Equipment, Operating Mode: specify type of control device(s) and % utilization, control efficiency.
 - Describe Emission Point: for identification purposes, stack or emission point appearance, location, and geometry; and whether emissions are confined (have a specifically designed outlet) or unconfined (fugitive).
 - Height Above Ground Level: stack or emission point height relative to ground level; can use engineering drawings, Abney level, or clinometer.
 - Height Relative to Observer: indicate height of emission point relative to the observation point.
 - Distance from Observer: distance to emission point; can use rangefinder or map.
 - Direction from Observer: direction plume is traveling from observer.
 - Describe Emissions and Color: include physical characteristics, plume behavior (e.g., looping, lacy, condensing, fumigating, secondary particle formation, distance plume visible, etc.), and color of emissions (gray, brown, white, red, black, etc.). Note color changes in comments section.
 - Visible Water Vapor Present?: check "yes" if visible water vapor is present.
 - If Present, is Plume...: check "attached" if water droplet plume forms prior to exiting stack, and "detached" if water droplet plume forms after exiting stack.
 - Point in Plume at Which Opacity was Determined: describe physical location in plume where readings were made (e.g., 1 ft above stack exit or 10 ft. after dissipation of water plume).
 - Describe Plume Background: object plume is read against, include texture and atmospheric conditions (e.g., hazy).
 - Background Color: sky blue, gray-white, new leaf green, etc.
 - Sky Conditions: indicate cloud cover by percentage or by description (clear, scattered, broken, overcast).
 - Wind Speed: record wind speed; can use Beaufort wind scale or hand-held anemometer to estimate.
 - Wind Direction From: direction from which wind is blowing; can use compass to estimate to eight points.
 - Ambient Temperature: in degrees Fahrenheit or Celsius.
Wet Bulb Temperature: can be measured using a sling psychrometer
RH Percent: relative humidity measured using a sling psychrometer; use local US Weather Bureau measurements only if nearby.
 - Source Layout Sketch: include wind direction, sun position, associated stacks, roads, and other landmarks to fully identify location of emission point and observer position.
Draw North Arrow: to determine, point line of sight in direction of emission point, place compass beside circle, and draw in arrow parallel to compass needle.
Sun's Location: point line of sight in direction of emission point, move pen upright along sun location line, mark location of sun when pen's shadow crosses the observer's position.
 - Observation Date: date observations conducted.
 - Start Time, End Time: beginning and end times of observation period (e.g., 1635 or 4:35 p.m.).
 - Data Set: percent opacity to nearest 5%; enter from left to right starting in left column. Use a second (third, etc.) form, if readings continue beyond 30 minutes. Use dash (-) for readings not made; explain in adjacent comments section.
Comments: note changing observation conditions, plume characteristics, and/or reasons for missed readings.
Range of Opacity: note highest and lowest opacity number.
 - Observer's Name: print in full.
Observer's Signature, Date: sign and date after performing VE observation.
 - Organization: observer's employer.
 - Certified By, Date: name of "smoke school" certifying observer and date of most recent certification.
- Required by Reference 9; other items recommended.

**COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
AIR POLLUTION CONTROL DIVISION - VISIBLE EMISSIONS OBSERVATION FORM**

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Source Name		Type of Source		Observation Date		Start Time		End Time		
Address		<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">City</div> <div style="border: 1px solid black; padding: 2px; margin: 0 5px;">State</div> <div style="border: 1px solid black; padding: 2px;">Zip</div> </div>		Sec	0	15	30	45	Comments	
				Min						
				1						
				2						
Phone # (Key Contact)		Source ID Number		3						
Process Equipment		Operating Mode		4						
Control Equipment		Operating Mode		5						
Describe Emission Point				6						
Height above ground level	Height relative to observer	Inclinometer Reading		7						
Distance From Observer		Direction From Observer		8						
Describe Emissions & Color				9						
Start		End								
Visible Water Vapor Present? If yes, determine approximate distance from the				10						
No Yes		stack exit to where the plume was read								
Point in Plume at Which Opacity Was Determined				11						
Describe Plume Background		Background Color		12						
Start		Start								
End		End		13						
Sky Conditions: Start				14						
End										
Wind Speed		Wind Direction From		15						
Ambient Temperature		Wet Bulb Temp		16						
		RH percent								
NOTES: 1 Stack or Point Being Read 2 Wind Direction From 3 Observer Location 4 Sun Location 5 North Arrow 6 Other Stacks				17						
				18						
				19						
				20						
				21						
				22						
				23						
				24						
				25						
				26						
				27						
				28						
				29						
				30						
		Range of Opacity								
		Minimum		Maximum						
I have received a copy of these opacity observations		Print Observer's Name								
Print Name:		Observer's Signature		Date						
Signature:										
Title		Date		Organization						
				Certified By:		Date				